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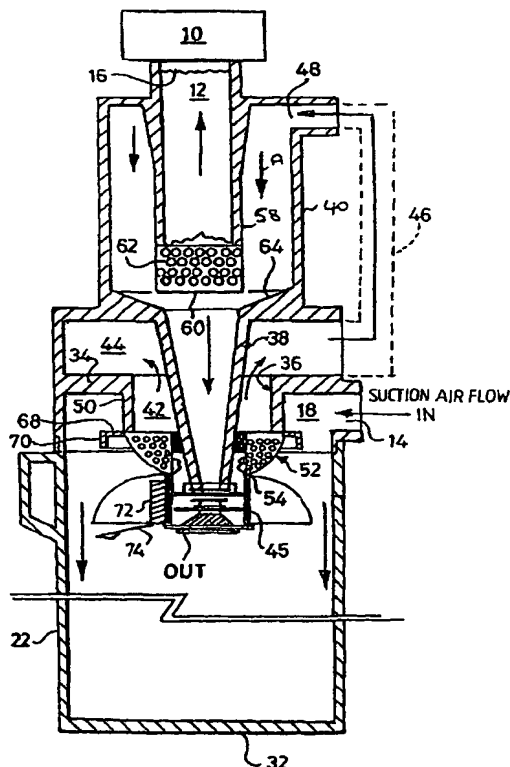
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(54) Title: IMPROVED SEPARATION APPARATUS



(57) **Abstract:** A cyclonic separation apparatus is described comprising a cylindrical vortex-starting chamber and frusto-conical cyclonic separation chamber. The separation chamber is formed from first and second frusto-conical cyclone regions. The first region has a larger cone-angle than that of the second region for the purpose of reducing the overall axial length of the cyclone separation chamber. A central tubular member extends axially of the cylindrical chamber and comprises a vortex starter. The wider end of the first frusto conical region begins in the region of the downstream end of the central tubular member. The wall of the downstream end of the central tubular member is apertured, and in use the frusto-conical wall of the first region (which is close to the apertured lower end of the central tubular member) forces a progressive reduction in radius on the circulating airstream and therefore a corresponding increase in its rotational velocity in the region of the apertures and just before the airstream enters the second frusto-conical cyclone section. This retains more higher density particulate material in the rotating airstream as it transfers to the second cyclone region than if no such first frusto-conical region is employed, which reduces the chance of higher density material migrating radially inwardly to exit via the apertures in the tubular member instead of remaining in the rotating airstream and moving therewith into the second frusto-conical separation region.



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